Application No.: 10/777,563
After Final Response dated: November 21, 2008
Reply to Office Action: August 25. 2008

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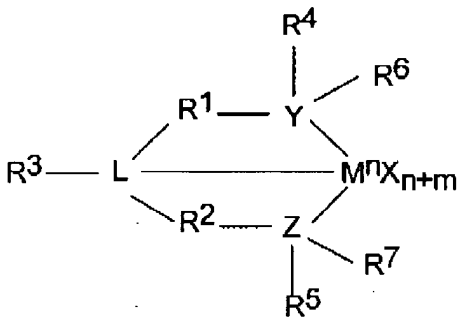
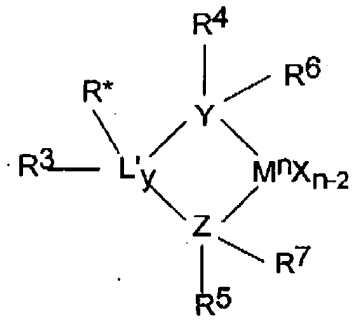
Amendments to the Claims

1. (Three Times Amended) A process for polymerizing olefin(s) comprising combining said olefin(s) in the presence of a catalyst system comprising a Group 15 containing [bidentate or] tridentate ligated metal catalyst compound, wherein the process is conducted at a temperature from between 50° C. to 200° C., and wherein the catalyst compound is represented by the formula: [formulae:]



or



wherein M is metal;

each X is an aryl substituted alkyl leaving group;

y is 0 or 1;

n is the oxidation state of M;

m is the formal charge of Y, Z and L [or of Y, Z, and L'];

L is a Group 15 element;

[L' is a Group 15 element or Group 14 containing group;]

Y is a Group 15 element;

Z is a Group 15 element;

R^1 and R^2 are independently a linear, branched, or cyclic C_2-C_{20} alkyl group; [C_1 to C_{20} hydrocarbon group, a heteroatom containing group having up to twenty carbon atoms, silicon, germanium, tin, lead, or phosphorus;]

R^3 is absent, a hydrocarbon group, hydrogen, a halogen, or a heteroatom containing group;

R^4 and R^5 are independently an alkyl group, an aryl group, a substituted aryl group, a cyclic alkyl group, a substituted cyclic alkyl group, a cyclic arylalkyl group, a substituted cyclic arylalkyl group or a multiple ring system;

R^1 and R^2 may be interconnected to each other, and/or R^4 and R^5 may be interconnected to each other; and

R^6 and R^7 are independently absent, hydrogen, an alkyl group, halogen, heteroatom or a hydrocarbyl group; [and

R^* is absent, hydrogen, a Group 14 atom containing group, a halogen, or a heteroatom containing group]

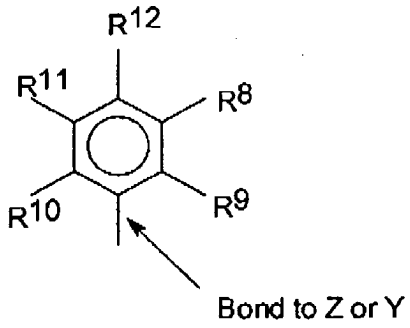
wherein said Group 15 containing tridentate ligated metal catalyst compound is added to a polymerization reactor in one of a slurry, a solution, an emulsion, a dispersion or a

suspension, and wherein said Group 15 containing tridentate ligated metal catalyst compound has an activity of at least 641 g polyethylene/mmol catalyst•atm•h.

2. (Once Amended) The process of claim 1 wherein R^1 and R^2 are a C_2 to C_6 hydrocarbon radical [selected from the group consisting of a C_1 to C_{20} hydrocarbon group, a heteroatom containing group, silicon, germanium, tin, lead, and phosphorus].

3. (Cancelled)

4. (Original) The process of claim 1 wherein R^4 and R^5 are represented by the formula:



wherein R^8 to R^{12} are each independently hydrogen, a C_1 to C_{40} alkyl group, a halide, a heteroatom, or a heteroatom containing group containing up to 40 carbon atoms, wherein any two R groups may form a cyclic group and/or a heterocyclic group, and wherein the cyclic groups may be aromatic.

5. (Once Amended) The process of claim 4 wherein R^8 to R^{12} [R^9, R^{10} and R^{12}] are independently a methyl, ethyl, propyl or butyl group and X is a substituted aryl group having greater than 10 carbon atoms.

6. (Once Amended) The process of claim 4 wherein R^8 to R^{12} [R^9, R^{10} and R^{12}] are methyl groups, and [R^8 and R^{11} are hydrogen and] X is [a] an alkyl substituted with an aryl group.

7. (Original) The process of claim 4 wherein L, Y, and Z are nitrogen, R^1 and R^2 are a hydrocarbon radical, R^3 is hydrogen, and R^6 and R^7 are absent.

8. (Once Amended) The process of claim 1 wherein L and Z are independently nitrogen, [L' is a hydrocarbyl radical,] and R^6 and R^7 are absent.

9. (Cancelled)

10. (Original) The process of claim 1 wherein the process is a continuous gas phase process.

11. (Original) The process of claim 1 wherein the process is a continuous slurry phase process.

12. (Original) The process of claim 1 wherein the olefin(s) is ethylene or propylene.

13. (Original) The process of claim 1 wherein the olefins are ethylene and at least one other monomer having from 3 to 20 carbon atoms.

14. (Original) The process of claim 1 wherein the catalyst system further comprises an activator.